

A CRITICAL INQUIRY INTO THE 'PROBLEM' OF STOPPING IN ARCHITECTURE'

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Abstract: "Self-driving Uber Car Kills Pedestrian in Arizona, Where Robots Roam," reads a *New York Times* article of March 19th, 2018, one day after the accident. The fundamental problem of artificial intelligence has always been how the robot stops; not how to make the robot walk, say "Hello!" or "Good Morning!"; do things so complicated as to make us mumble in awe: "Wow!", but rather how *not* to act, how *not* to say "Hello!" at the right, or rather wrong moment. What is this moment? How can it be found? This paper asks such questions in the context of design and architecture: How does architecture stop? How do we close a design process, or choose among different design variations? Such concern for stopping has persisted in history, even if it has been eclipsed by what could be called, perhaps redundantly, *the ideology of self-generation*. Architects are always busy discoursing about generation, how architecture should come about, *by itself, NOW!* Upon close inspection, however, we find that the *desire* for stopping has been there all along, creeping from between the building blocks of architecture, undermining the absolutism of self-generation. From the projectiles of Vitruvius foundering in mud to the 'hermaphrodite' forms of Ronchamp, and today, in our deceptively fluid digital age, there are architects who have paid as much attention to stopping as they have to generation. The paper highlights instances of stopping in history, from Perrault to Paul Valéry and the digital.

Keywords: Stopping, design, generation, knowledge, architecture

INTRODUCTION

"We think in generalities, but we live in detail." (Whitehead 1926, 192)

How does architecture stop? How do we make design choices? How was such a question addressed in the past? One of those fascinated with stopping was Paul Valéry, a thinker whose aesthetics intersected with Le Corbusier's, yet one who is either misunderstood or rarely mentioned in architectural discourse.² Valéry was fascinated with seashells, how their form stops through a "combination of rhythm and indivisible movement."

But suddenly an end must come. This strange torsion must cease, the nacre on the inside and the coarser covering must join, and the distinction between the two substances of the shell must vanish or explain itself, while at the same time its form must be completed by some decision that remains to be arrived at . . . The architect knows only his rule and square. The musician does pretty much as he pleases. The poet proceeds by leaps and bounds. But nature has preserved her cautious methods, the inflection in which she envelops her changes of pace, direction, or physiological function. She knows how to finish a plant, how to open nostrils, a mouth, a vulva, how to create a setting for an eyeball; she thinks suddenly of the sea shell when she has to unfold the pavilion of an ear, which she seems to fashion the more intricately as the species is more alert. (Valéry 1977, 111-112; italics added).

Architects have come a long way from the rule and square. Today, with the aid of digital technologies, one can generate forms with a complexity and speed unimagined up until three decades ago. Yet it is precisely today that the question of stopping erupts with full force: *Where do you stop? How do you select the best*

out of hundreds of iterations? While the answers vary, they all share the ethos and hubris in thinking that one *can* and *ought* to provide an answer to such question; they all frame stopping as a *problem of knowledge*, one that demands principles or criteria *NOW!* for a process whose closure, in Valéry's terms, is enabled by a *delayed* decision ... *Stopping is an event that is found in (a) process, rather than an epistemological problem that can be solved, in general. Yet knowledge as an epistemic domain at a particular historical moment matters insofar as it demands and structures the way we endeavor to provide an impossible answer to the 'problem' of stopping. While stopping is structured by such demand, it is always found outside the domain of knowledge.*

1. THE NATURAL VERSUS THE CUSTOMARY

The question of stopping precedes the digital. It is asked most urgently at those moments of breaks and crisis, but also liberation, that define modernity. For example, the 17th century's *querelle* between François Blondel and Claude Perrault on whether certain proportions were transcendently or empirically beautiful is one such moment. What is at stake in this debate is nothing other than the question of *knowing* where and how to stop at the very moment of a shift of emphasis from inherited knowledge to one constructed or generated by the subject.³ Perrault's ingenious 'solution' to the 'problem' was to provide both a constant and variable concept, or a positive and arbitrary beauty. If the former is "very apparent and consists in the relationship the parts have

collectively as a result of the balanced correspondence of their size, number, disposition, and order," the latter was what "appears agreeable not by reasons within everyone's grasp but merely by custom and the association the mind makes between two things of a different nature" (Perrault 1993, 40-51).

Perrault's theory has a double 'fail-safe' feature: on the one hand, the eye of the mind can *positively* recognize the beauty of proportions. If the eye fails (to stop...), then the empirical tradition corrects our judgment through a (potentially infinite) table of proportional values developed over time. However, as Rudolf Wittkower recognized, this doubling of judgement opens up the door toward relativism. In *Architectural Principles* he lamented that proportions had become infinite: "*Les proportions, c'est l'infini* – this terse statement is still indicative of our approach" (Wittkower 1971, 153). Albeit, Wittkower contributed himself to such relativization, when he described the Palladian Villas as customary variation governed by a positive knowledge: geometry.

In "The Mathematics of the Ideal Villa," Rowe *discerns* the same geometrical ghost underlying Palladio's Villa Malcontenta and Le Corbusier's Villa Stein at Garche.⁴ He argues that in Malcontenta the plan exhibits 'natural' beauty through its abstract shape, while the facades exhibit 'customary' beauty through the Ionic order. At Garche it is the facades that exhibit the 'natural' as "virtues of a mathematical discipline," while the plan demonstrates the ambiguous 'customary' beauty: the 'arbitrary' free movement, curved walls and framed views (Rowe 1976, *Ibid.*, 9). Here, the design choice or stopping belongs to the 'customary', while it is held in check, as it were, by the 'natural'.⁵ Aldo Rossi proposed a similar distinction between typology as natural and constant and morphology as customary and variable (Rossi, 1982, 116). Alan Colquhoun distinguished between *form* which applies to "a configuration with natural meaning or none at all," and *figure* which refers to "a configuration whose meaning is given by culture" (Colquhoun, quoted by Peter Rowe, 1994, 177). Though less explicitly, Greg Lynn saw the spline as natural insofar it was generalized by a topological continuity, and the baroque curve as *only* customary insofar as it consists of "segments of multiple discrete radial elements." (Lynn 1999, 20).

In *Design Thinking* Peter Rowe subsumes stopping under "a *problem space* [with] *knowledge states*, some of which represent solutions to a problem" (Rowe 1994, 51) This 'natural' is represented as a tree whose nodes are stopping points. But where does the tree metaphor stop?⁶ In *Design Thinking in Digital Age* Rowe, while arguing (or hoping?) that the digital provides "a clearer view of suitable stopping rules" he also provides the

disclaimer that "there is no in-principle guarantee that this would be the case" (Rowe, 2017, 59).⁷ One can stop only on the level of detail and the customary. Why is stopping not possible from with-in knowledge?

2. VALÉRY AND EUPALINOS

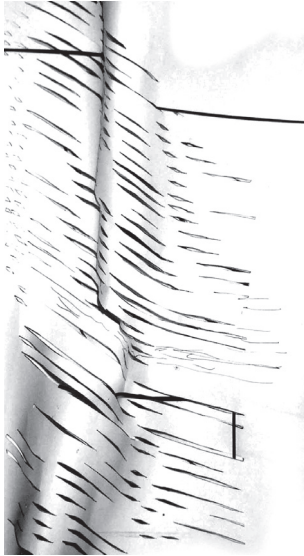
That is, Valéry answers, because there is "no way to measure knowledge except by the real powers it confers. *I know only what I know how to handle*" (Valéry 1977, 126). *The object of representation is already the representation of the object.* The 'problem' of not knowing where to stop is our knowledge's freedom to produce representation of objects in respect to form: "If I have undertaken to produce one particular form, it is because I could have chosen to create entirely different ones . . ." (Valéry 1977, 120-121). Elsewhere, Valéry writes that we can stop only by acting "directly on the freedom of the system of our *esprit* ... we simply wait for the desired effect to present itself ... we can do nothing but wait. *We have no means to achieve in ourselves exactly what we want to obtain*" (as cited in Guerlac 1997, 102). What does this 'waitingwait' entail?

Eupalinos or the Architect provides a way out of this infinite variation. Often misunderstood as a celebration of Platonic thought the play provides an inversion of such thought.⁸ Socrates, uncharacteristically cast with doubt for a man who presumably knew everything, is eternally damned to wonder like a ghost without finding its body, its closure, its finitude, without knowing where to stop. He is 'paying for his sin', which, to paraphrase Nietzsche vis-à-vis Derrida, is the sin of never having written.⁹ The book is a passage from Socrates to Eupalinos, from the thinker to the maker, from geometry as an idea in the mind to a geometry mediated by objects and techniques. Phaedrus confronts Socrates with the story of a maker "of a strange versatility" who

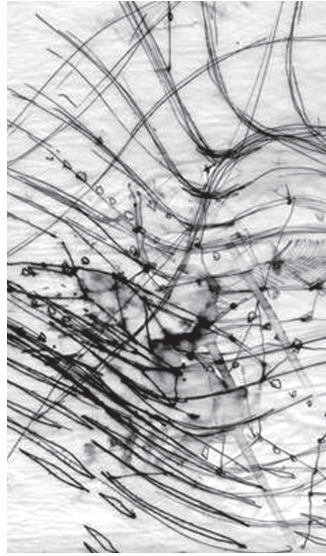
thought that a ship should . . . be created by the knowledge of the sea, and should almost be fashioned by the very wave itself! . . . He sought therefore for the form a hull should have if the bottom was to remain more or less constant, whether the ship rolled from side to side – or danced in any other way about some center He would draw strange figures which for him made visible the secret properties of his float; but for my part I could see in them nothing in the least like a ship. (Valéry 1932, 82-83).

Through these 'strange' figures the constructor would try to

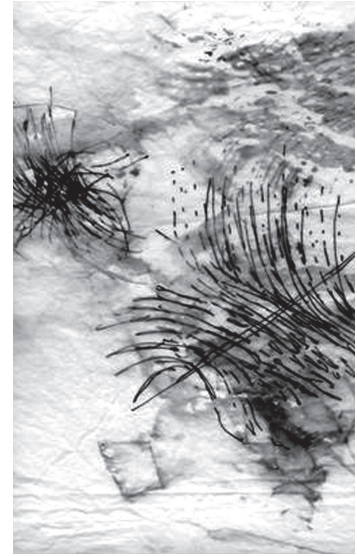
imitate the perfection of the swiftest fishes . . . their *fishy thoughts* . . . steering towards their destiny according to whim; and then their live mastery in the heart of storms! It was as though he himself felt their well-adapted forms conducting from head to tail, by the quickest way, the waters which lie in front of them, and which must be put behind them that they may advance (Valéry 1932, 83-84, italics added)



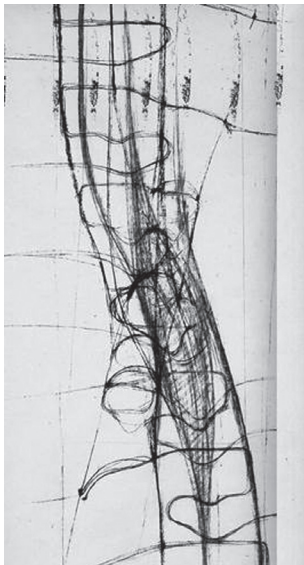
Process: Paper model



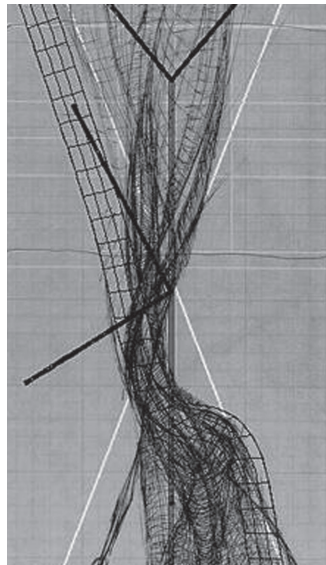
Process: Paper model & Drawing



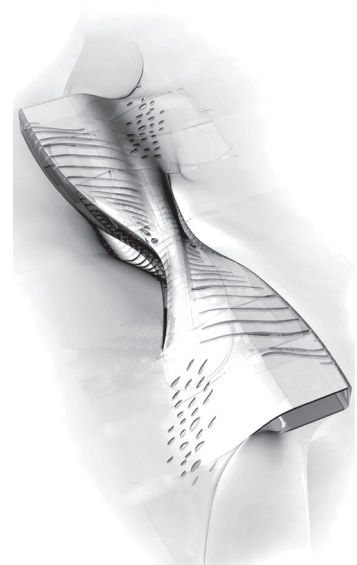
Process: Digital modeling & drawing



Process: Watercolor & drawing



Process: Watercolor & drawing



Process: Digital modeling & drawing

Figure 1: *House for Two Strangers*, designed by Skender Luarasi 2003

The design process is a *dis*-position or tendency that progresses in and through obstacles:

if no obstacle impedes your progress, progress is quite impossible . . . once the necessary obstacle is present, it works against you; it drinks up your fatigues, parsimoniously metes out to you space in time. *Here the delicate act of the artist intervenes in the choice of a form: for the form has to take from the obstacle what it requires in order to advance, but must only take what least checks the mover.* (Valéry 1932, 84, italics added).

Valéry's conclusion is that knowledge can only be measured by powers outside itself. One can know through what one does not know how to handle. One can stop not when knowledge abstracts obstacles but only when obstacles abstract knowledge.

3. A HOUSE FOR TWO STRANGERS

The project *A House for Two Strangers* is shown below as an example a design process marked by

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intercalated moments of stopping. This process is not a 'construction tree' with 'knowledge states', but rather a chain of obstacles *entrenched* into one another. Each of these states is either a potential stopping moment or another rhizomatic bifurcation. The variable curvature is actualized with different digital and analogue techniques which perform as obstacles of one another: paper, pencil drawing, watercolor, photoshop, physical models and digital modeling. The project, which is based on Samuel Becket's *Waiting for Godot*, folds around a path that is doubled in the exterior and the interior. The path connects the spaces of the two main characters of the play, while also connecting the house to that outside from which Godot is expected to arrive. Vladimir and Estragon wait for Godot, but *God-ot* never appears. Godot's absence, which is necessarily infinite, triggers a *toggling* process between the two, one that yields closure for the two tormented souls (figure 1).

CONCLUSION

How does the increase in computational speed affect stopping? It is more difficult to stop in a digital

context because, to paraphrase Valéry, the non-relation between form requirements such as material and size increases. This liberation of form is similar to André Leroi-Gourhan's rather 'scandalous' argument about the liberation of hands from locomotion and nourishment, a liberation that privileged gesture and speech, and consequently the evolution of the brain. The latter "was not the cause of developments in locomotory adaptation but their beneficiary" (Leroi-Gourhan 1993, 26). *The more developed the technology is, the 'blanker' the page is, less criteria to justify form there are; freer our mind and hands are; more difficult it is to stop; more relevant the question of stopping becomes.* What new 'brain' does this liberation call? If we are on the verge of a "homo cyberneticus" relieved from the task of remembering (Cache 2011, 24), then what will this liberated brain be capable of thinking? In order to see whether such forecast is a tendency in the making or just an illusion, further research of the design processes must be undertaken, particularly by emphasizing stopping in its own terms and conditions, in terms of a non-relation with generation.

ENDNOTES

- ¹ This paper has emerged from my dissertation "Where Do You Stop? A Critical Inquiry into Style, Geometry and Parametricism in History," received at Yale University in 2018. It is also a snapshot of the emerging introduction of my future book: *On the Art of Stopping: A Critical Inquiry into the Problem of Stopping in the work of Le Corbusier*, which is currently in progress.
- ² Niklas Maak is one of the few to provide an authoritative account on the relationship between Paul Valéry and Le Corbusier's work. (See: Maak, 2011)
- ³ On the relationship between knowledge as generation and modernity see: Helmut Muller-Sievers, *Self-Generation: Biology, Philosophy, and Literature Around 1800*, (Stanford: Stanford University Press, 1997). On the relationship between modern knowledge as construction and geometry see: David Rapport Lachterman, *The Ethics of Geometry: A Genealogy of Modernity*, (New York: Routledge, 1989). For a reference of these texts in architectural discourse see: Detlef Mertins, "Bioconstructivisms," in *Modernity Unbound*, (London: Architectural Association Publications, 2011), p. 161.
- ⁴ Anthony Vidler has argued that if Wittkower uses geometry to construct the historical object, then Rowe uses it to construct the "post-modernist object" (Vidler 2013, 79).
- ⁵ Vidler has argued that Rowe's framework would stand "both as the model for design approach, as in the work of the New York Five, and as the paradigm for contemporary formalism to work against, as in the digital practices of Greg Lynn" (Vidler 2008, 86). It can be shown, however, that digital practices rely and expand on such model.
- ⁶ One of the reviewers of this paper commented that "trees are not metaphors but are parts of mathematical structures of lattices, partial orders, posets, chains, etc." I use the term metaphor in the strict sense of the *model*. On the topic of metaphors and models see: Max Black's *Models and Metaphors*, 219-243, and Paul Ricoeur's *The Rule of Metaphor*, 239-246. The argument is that "with respect to the relation to reality, metaphor is to poetic language what model is to scientific language (Ricoeur, 1977, 240).
- ⁷ I explore this topic the question of stopping in more detail in: "Making the Donkey Drink Water: An Inquiry into the 'Problem' of Stopping in the Digital Age," in *[Un]Timely Architecture*, edited by Ingrid Mayrhofer-Hufnagl, to be published by Transcript in 2020.
- ⁸ As Niklas Maak correctly points out, *Eupalinos* "embodies an ironical approach typical of its author, using a Platonic dialogue to oppose Plato" (Maak 2011, 121).
- ⁹ Jacques Derrida quotes Nietzsche: "Socrates, he who does not write," in *Of Grammatology*, trans Gayatri Chakravorty Spivak (Baltimore: The John Hopkins University Press, 1974), p. 6

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